

Guidance for Preparing White Papers and Proposals

Undersea Weapons Guidance and Control Discovery and Invention Program
Office of Naval Research, Code 333

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General Comments

This document outlines preferred formats for white papers and proposals submitted to the Office of Naval Research (ONR) Undersea Weapons Guidance and Control Discovery and Invention (USW G&C D&I) Program. Individuals and organizations seeking funding from this program are encouraged to follow it. Bear in mind that each year the USW G&C D&I program officer may have to read through dozens of white papers and proposals, so following this guidance will make the program officer's job easier as it will allow for fair comparisons between competing proposed projects.

There are reasons for preparing a well written, neatly formatted, complete white paper or proposal. First, by clearly explaining the problem to be addressed, the approach to solving it, the attendant goals of the research, and the required time and funding, the program officer is provided with a clear picture of a proposed project. Second, white papers and proposals are not only read by the program officer to whom they are submitted, but by their successors, program officers managing related programs, high-level ONR technical managers, ONR contracting personnel, and, on occasion, by auditors. Therefore, well prepared documents convey the sum and substance of a proposed or funded project and will not compel a reader to ask for clarification from the program officer or the organization from which it originated. Finally, a well prepared document reflects well upon the principle investigator and his organization.

This guidance is generally consistent with, and expands upon, the guidance that may be downloaded from the ONR website. Go to <http://www.onr.navy.mil/02/default.htm> and click on "How to Submit a Proposal."

White Papers versus Proposals

Two types of documents are generally used in the process to solicit funds from ONR: white papers and proposals.

White Papers are used to submit possible research projects to program officers to see if there is any interest in, or possibility of, funding a specific research project. They include a statement of the technical problem, the possible military benefit, a proposed approach to a solution and a brief statement of the yearly costs. They do not include extensive contractual statements addressing such issues as salaries, benefits, travel costs, equipment purchases or certifications on equal-opportunity employment.

Proposals are more formal requests for funding that lead to contractual relationships with ONR. They include the same technical narrative found in a white paper. Except in the case of funding research at federal organizations, proposals must also include extensive contractual statements. All accepted proposals are processed by ONR's contracting department. "New-start" proposals are submitted for new

projects, whereas “follow-on” proposals are used to fund a project that is to continue work from a project that has ended or is about to end. “Revised” proposals are used to realign or redefine an existing project.

Processing White Papers and Proposals at ONR

ONR announces the types of research and development work it is interesting in funding by issuing Board Agency Announcements (BAAs) that usually include a list of related programs. Before any white paper or proposal is submitted to ONR, a principal investigator, or representative from his organization, should contact the program officer(s) managing the program(s) that may be appropriate for funding the proposed project.

Soliciting and receiving funding from ONR generally proceeds as follows:

1. A white paper is submitted.
2. If the program officer feels that the proposed project merits further consideration, he will solicit a proposal. Otherwise, the process stops here.
3. A proposal is submitted. Upon receipt, it is logged into ONR’s accounting system software.
4. The program officer decides if the proposed effort should be funded. If he decides that it should be funded, he enters additional information from the proposal into ONR’s accounting system software and sends it to ONR’s contracting department. Otherwise, the process stops here.
5. ONR’s contracting division negotiates a contract with the principle investigator or his organization.
6. Funds are committed and sent. The delay between the contracting department receiving the proposal and the receipt of funds could be anywhere from three weeks to three months.

For new-start proposals, the process described above is typical. Although proposals may be submitted immediately, the prior submission of a white paper is highly recommended as they are less detailed. For follow-on or revised proposals, a white paper is usually not necessary.

White Papers

A white paper should be divided into the sections described below and listed in the order in which they should appear. Some of the sections are optional.

Cover Page

The cover page must include:

- title, preferably in a large, bold font;
- name and address of the principal investigator's organization and its "type" (e.g., for-profit, nonprofit, educational, small business, minority owned, historically black college or university, minority institution, federal demonstration project participant, etc.);
- name of the Broad Agency Announcement (BAA), including the federal fiscal year, under which the white paper is submitted;
- total requested funding for the duration of the project;
- duration of the project and proposed start date;
- the statement "White Paper";
- principal investigator's name and contact information (address, telephone number, fax number, e-mail address, etc.);
- date of submission;
- statement that the document contains proprietary information (optional).

Executive Summary (optional)

This section—also known as an abstract—should be nothing more than a brief summary of the white paper's content. It should be limited to one page.

Problem Statement

In this section the principal investigator answers the question, "What is the system-level problem to be solved and why is it important?" It need only be a paragraph stating the problem and the possible military benefit (new or improved capability) if a solution is found. Half a page should be sufficient.

The section could open with a statement such as, "The current ABC sonar system cannot suppress broadband jammers," and proceed with a brief elaboration. It could follow with a statement such as, "If the transmission from jammers could be suppressed in signal strength by XXX dB, the detection range could be increased by as much as YYY km."

Technical Background

This section provides the broader context in which the white paper is being submitted, providing an elaboration of the problem statement and military benefits stated in the previous section (Problem Statement). It may include a historical overview of the problem with respect to a current system capability performance shortfall, previous approaches to solving the problem that either provided the current capability or failed to provide a needed capability, and a brief explanation of any current line of research that promises a solution. This section may require more than one page.

References should be cited if they can provide additional background. Of particular value are reports describing test and evaluation (T&E) trials of developing or in-fleet systems that document a specific

system performance shortfall, or a concept-of-operations study that quantifies the gain from a hypothesized new system or an improved capability in an existing system.

Technical Objectives

In this section the principal investigator answers questions such as, “What is the nature of the solution to be provided?” or “What specific technologies are needed?” It lists general technical objectives that collectively will provide a solution to the system-level problem stated above (Problem Statement) and describes how they will provide either a new or improved military capability (new system or an improved current system). It is helpful to include the basic hypotheses and assumptions that underpin each objective. This section should require one page at most.

Related to the example above, a technical objective could be, “The development of a beamforming algorithm capable of suppressing up to XXX jammers, each located at a unique bearing angle with respect to the array.”

Technical Challenges

In this section the principal investigator answers questions such as, “What are the specific technologies to be developed?” or “What are the specific difficulties to be encountered?” It lists the technical hurdles that must be overcome to meet the technical objectives, identifying the ones that are the most important or the most difficult. This section should require one page at most.

Continuing with the example above, a technical challenge could be, “The implementation of a covariance-based beamforming algorithm that is numerically efficient, but capable of accurately tracking the relative motion of jammers in highly dynamic scenarios and low ping cycles.”

Technical Approach

In this section the principal investigator answers the question, “What is the plan of work?” It contains an outline of a general schedule of work broken down into logical units that will resolve the technical challenges and meet the technical objectives. This section should require no more than one page.

The work should be organized into several tasks, each related to a specific objective or set of objectives, each lasting for a specified length of time. Tasks can be performed sequentially or simultaneously. Significant events (e.g., a field test, the construction of piece of equipment) and milestones (e.g., the delivery of software, the completion of a task, submission of a report) should be identified for each task. Each task should be described by a separate paragraph with its events and milestones listed as bullets.

If the proposed project will include performers from, or be coordinated with, projects at other organizations (outside participants), describe the work that will be executed by those organizations.

Deliverables (optional)

List tangible products the proposed project will produce. Often, these follow immediately from the technical challenges, e.g., an algorithm documented in a report or paper, software source code, a piece of electronic hardware, a sensor, etc. In the case of a basic research project, the deliverable may simply be a final report or a paper published in a peer-reviewed journal.

Transitions

Identify potential transitions of deliverables to current Navy programs or systems, if any. State the program or system's name and related Navy sponsoring organization. If there are no specific transition opportunities—this may be the case in a basic-research project—a statement such as “No planned transitions” is acceptable. This section should require no more than one page.

Related Projects (optional)

List related ONR-funded projects, if known. Summarize each project in one or two sentences. Do not include projects that will share or otherwise collaborate on tasks, as these are to be listed under Technical Approach. This section should require less than a page.

Budget Summary

Provide a simple funding profile for the proposed project. This should require less than a page. If most of the funding will provide for salaries, overhead and a small amount travel, a simple table is all that is required. For example:

FY04	FY05	FY06
150K	155K	161K

In some cases a more detailed table may be warranted. For example, if the proposed project will require the purchase of a significant amount of equipment or materials, the following table would be preferable:

	FY04	FY05	FY06
Labor:	150K	155K	161K
Equipment:	20K	30K	0K
Materials:	10K	15K	10K
Total:	180K	200K	171K

List any financial support the principle investigator's organization will provide if the project is funded by ONR. This is sometimes referred to as “internal research and development (IR&D) funding.”

References (optional)

List any documents that may be referenced earlier in the white paper. This will include laboratory reports, conference papers, books and peer-reviewed papers. Only cite documents that are easy to obtain and written in English. Do not include unpublished viewgraph presentations or “private communications.” If there are no citations in the narrative, do not include this section.

Facilities (may be optional)

Provide a description of the principal investigator's organization and its facilities. This section should require less than a page.

Organizations that have submitted a white paper or proposal to ONR in the past, and are known to the program officer to whom these documents will be submitted, need not include this section.

Qualifications (may be optional)

Provide summaries of the background and experience of the principle investigator and other project personnel. These “vitas” should list the research projects currently being undertaken by project personnel. It is helpful to include in each vita a short list of relevant reports, peer-reviewed papers and patents. These vitas should be limited to one page per person. Usually half a page per person is sufficient.

Principal investigators that have submitted a white paper or proposal to ONR in the past, and are known to the program officer to whom these documents will be submitted, need not include this section.

Appendices (optional)

Principle investigators may wish to provide a more detailed description of an algorithm, a mathematical derivation, a manufacturing process or any other technical matter that was previously mentioned in the white paper, mostly likely under Technical Background. This will allow for a more complete narrative without cluttering the body of the white paper.

Proposals

As with a white paper, a proposal should be divided into the sections described below and listed in the order in which they should appear. Some of the sections are optional.

Cover Page

The cover page must include:

- title, preferably in a large, bold font;
- name and address of the principal investigator's organization and its "type" (e.g., for-profit, nonprofit, educational, small business, minority owned, historically black college or university, minority institution, federal demonstration project participant, etc.);
- name of the Broad Agency Announcement (BAA), including the federal fiscal year, under which the white paper is submitted;
- total requested funding for the duration of the project;
- duration of the project and proposed start date;
- one of the following statements, or variation thereof:
 - "New-start Proposal for a [number]-year project commencing in FYXX"
 - "Follow-on Proposal for a [number]-year project commencing in FYXX"
 - "Revised Proposal for a current [number]-year project that commenced in FYXX"
- principal investigator's name and contact information (address, telephone number, fax number, e-mail address, etc.);
- business point-of-contact's name and contact information;
- the name(s) and signature(s) of the official(s) authorized by the principal investigator's organization to enter into contractual obligations (required for non-federal organizations);
- date of submission;
- statement that the document contains proprietary information (optional).

Executive Summary

This section is optional for white papers, but must be included in proposals. See the guidelines for preparing white papers.

Problem Statement

See the guidelines for preparing white papers.

Technical Background

See the guidelines for preparing white papers.

Technical Objectives

See the guidelines for preparing white papers.

Technical Challenges

See the guidelines for preparing white papers.

Technical Approach

See the guidelines for preparing white papers.

Deliverables

This section is optional for white papers, but should be included in proposals. See the guidelines for preparing white papers.

Milestone Chart (optional, but highly recommended)

A milestone chart, useful for tracking progress within a project, displays all events and milestones with respect to task and time. Commonly, tasks are listed on the vertical scale, with the horizontal scale indicating time calibrated in federal fiscal years and quarters. The duration of each task, sub-task or event is indicated by a horizontal lines with milestones indicated as points on the line. Microsoft Project may be useful for preparing this item.

Transitions

See the guidelines for preparing white papers.

Related Projects

This section is optional for white papers, but should be included in proposals if related ONR projects are known to the principal investigator. See the guidelines for preparing white papers.

Budget Summary

The content of this section must follow the same guidelines for preparing white papers. In addition, it must list the agencies that are to receive, or have received, the proposal or are currently supporting essentially the same project.

References (optional)

See the guidelines for preparing white papers.

Facilities

This section may be optional for white papers, but must be included in proposals. See the guidelines for preparing white papers.

Qualifications

This section may be optional for white papers, but must be included in proposals. See the guidelines for preparing white papers.

Appendices (optional)

See guidelines for preparing white papers.

Budget

This section must be included in any proposal submitted by a non-federal organization. It is an expanded version of the Budget Summary, and typically includes both a yearly cost breakdown and a project lifetime cost summary. This section can be quite complex and lengthy and will list expenses for salary, fringe benefits, travel, software and fees, to name just a few.

Principal investigators submitting a proposal should seek the help of their organization's contracting staff to prepare this section.

Certification

The appropriate certification document must be included in any proposal submitted by a non-federal organization. A "Representations and Certifications Statement" must be included in proposals leading to contracts. A "Certification for Grants and Agreements" must be included in proposals for grants. These documents, which are lengthy but self-explanatory, may be downloaded from ONR's website at <http://www.onr.navy.mil/02/repcert.htm>.

Principal investigators submitting a proposal should seek the help of their organization's contracting staff to prepare this section.

Questions and Answers

Are there recommended page formats for white papers and proposals?

All margins should be 1 inch from the paper edges. Time New Roman or Courier New fonts are preferable and should be 10, 11 or 12 points in size. Single-space the text. Paragraphs should be in block form and have a blank line between them. Sections titles should be either underlined or in bold font. Number every page except the cover page.

These are not hard rules. Just endeavor to submit a tidy document.

May I use color?

Yes, although it is often possible to avoid using it. For example, if a two-dimensional plot of data contains three lines, it is usually sufficient to use different line styles (solid, dashed and dotted), rather than three solid lines, each a different color. It is usually not necessary to use any other color except black for the text.

There are cases in which color is preferred, most notably two-dimensional surfaces that are plotted as color contours.

White papers and proposals are often printed or photocopied and filed at ONR; therefore, composing documents in black and white will ensure that visual information is preserved.

In what medium should I submit white papers and proposals?

White papers and proposals may be submitted on paper through surface mail, but the preferred method is in “soft form” via the Internet. (Submission in soft form may be a requirement in the future.) The preferred file formats are Microsoft Word and Adobe PDF.

Are there any specific recommendations for figures and photographs?

Figures (includes photographs) should be numbered and have captions. Figures containing graphical data should have their axes clearly labeled and calibrated in familiar units. Avoid the use of color.

If a white paper or proposal is submitted in soft form (e.g., Microsoft Word), try to incorporate figures and images in a compressed file format such as JPEG.

May I submit classified white papers or proposals?

Yes.

Acronyms—how do I handle them?

Always define acronyms, even the obvious ones. Define an acronym the first time it is used; thereafter, only the acronym may be used. An example: “The Office of Naval Research (ONR) is a part of the Department of the Navy (DoN). Many ONR employees have worked in other organizations within the DoN.”

Will I be subject to any additional regulations if my proposed project involves experiments with animals or humans?

Yes. If you propose to do experiments involving animals, your proposal must include, among other things, a rationale for the use of the animals, evidence of the knowledge and capability to comply with local and federal regulations regarding experimentation with animals, and a plan for collecting and reporting data. If you propose to do experiments with humans, your proposal must include a risk evaluation that must conform to the current Navy instructions on the use of human subjects. Detailed guidance should be obtained from the ONR Animal/Human Use Administrator, phone: (703) 696-4046.